

### **Amendment to the claims**

1 Please amend claims 1, 6, 11, 26, 28 and 29 as shown in the following listing of  
2 claims. This listing of claims will replace all prior versions, and listings, of claims in the  
3 application.

1 1. (currently amended) An apparatus for re-ordering video data for a display,  
2 comprising:

- 3 a) a first transpose means for receiving video data and performing a first  
4 transpose process on such video data to create partially re-ordered video data;  
5 b) a means for storing the partially re-ordered video data; and  
6 c) a second transpose means for reading the partially re-ordered video data  
7 and performing a second transpose process on such partially re-ordered video data  
8 to create fully re-ordered video data,

9 wherein the first and second transpose means are configured to perform  
10 the first and second transpose processes to convert the received video data to the  
11 fully re-ordered video data that is a transposed video data of the received video  
12 data, the fully re-ordered video data being compatible to a transposed scanning  
13 technique for driving the display.

1 2. (original) The apparatus as set forth in claim 1 wherein the first and second  
2 transpose means include:

3 one or more programmable hardware blocks.

1 3. (original) The apparatus as set forth in claim 1 wherein:

2 the first transpose means includes a first programmable processor and the  
3 second transpose means includes a second programmable processor, such that the  
4 apparatus is programmable for any of a plurality of display formats.

1 4. (original) The apparatus as set forth in claim 3 wherein the first and second  
2 processors are fabricated on a common substrate (S).

- 1 5. (original) The apparatus as set forth in claim 4 wherein the storing means  
2 includes computer memory which is fabricated on the common substrate.
- 1 6. (currently amended) The apparatus as set forth ~~fourth~~ in claim 4 wherein  
2 the storing means includes a separate IC that is electrically connected with the  
3 first and second programmable processors.
- 1 7. (original) The apparatus as set forth in claim 3 wherein the first and second  
2 processors are programmable to re-order video data for two or more types of  
3 displays selected from the group consisting of a transpose scan CRT display, an  
4 LCOS device, a PDP, a monochrome DMD, and a color DMD.
- 1 8. (previously presented) The apparatus as set forth in claim 1, the storing  
2 means including:  
3 a means for storing at least two consecutive frames of the partially re-  
4 ordered video data.
- 1 9. (previously presented) The apparatus as set forth in claim 8 wherein the  
2 second transpose means includes a processor programmed to read the partially re-  
3 ordered video data associated with a first frame from the storing means while the  
4 first transpose means writes the partially re-ordered video data associated with a  
5 second frame to the storing means.
- 1 10. (previously presented) The apparatus as set forth in claim 1, wherein the  
2 first transpose means includes: a means for receiving RGB video data;  
3 a means for writing the RGB video data to the storing means;  
4 a means for separating RGB video data into separate R, G, and B video  
5 data; and  
6 a means for writing the R, G, and B video data to the storing means.

1 11. (currently amended) The apparatus as set forth in claim 10, the storing  
2 means including:

3 a means for storing at least one frame of the RGB video data; and  
4 a means for storing at least one frame of the R separation video data, at  
5 least one frame of the G separation video data, and at least one frame of the B  
6 separation video data.

1 12. (previously presented) The apparatus as set forth in claim 11, the second  
2 transpose means including:

3 a means for addressing the RGB video data stored in the storing means; a  
4 means for reading the RGB video data stored in the storing means to created fully  
5 re-ordered RGB video data;

6 a means for communicating the fully re-ordered RGB video data to  
7 downstream modules of a display processing system;

8 a means for addressing the R, G, and B separation video data stored in the  
9 storing means; a means for reading the R, G, and B separation video data stored in  
10 the storing means;

11 a means for re-ordering the R, G, and B separation video data into fully re-  
12 ordered R, G, and B color bar video data having consecutive downwardly  
13 scrolling R, G, and B scan lines; and

14 a means for communicating the fully re-ordered R, G, and B color bar  
15 video data to downstream modules of a display processing system.

1 13. (previously presented) The apparatus as set forth in claim 12, the reading  
2 means including:

3 a means for identifying an operational configuration for the receiving  
4 means based on a selected display.

1 14. (previously presented) The apparatus as set forth in claim 10, the receiving  
2 means including:

3 a means for generating a plurality of sub-fields associated with a frame of  
4 the received video data, wherein each sub-field includes sub-field video data  
5 associated with the received video data; and a means for writing the sub-field  
6 video data for the plurality of sub-fields to the storing means.

1 15. (previously presented) The apparatus as set forth in claim 14, the  
2 generating means including:

3 a means for temporarily storing a predetermined amount of sub-field data  
4 that is generated serially, wherein the writing means transfers the predetermined  
5 amount of sub-field data from the temporary storing means to the storing means in  
6 parallel.

1 16. (previously presented) The apparatus as set forth in claim 14, the storing  
2 means including:

3 a means for storing the sub-field video data for the plurality of sub-fields.

1 17. (previously presented) The apparatus as set forth in claim 16, the reading  
2 means including:

3 a means for addressing the sub-field video data for the plurality of sub-  
4 fields in the storing means;

5 a means for reading the sub-field video data for the plurality of sub-fields  
6 in the storing means to create a fully re-ordered sub-field video data; and

7 a means for communicating the fully re-ordered sub-field video data to  
8 downstream modules of a display processing system.

1 18. (original) The apparatus as set forth in claim 14 wherein the sub-fields are  
2 RGB sub-fields and the sub-field data is RGB sub-field data.

1 19. (previously presented) The apparatus as set forth in claim 14, the  
2 generating means including:  
3 a means for temporarily storing a predetermined amount of RGB sub-field  
4 data that is generated serially, wherein the writing means transfers the  
5 predetermined amount of RGB sub-field data from the temporary storing means to  
6 the storing means in parallel.

1 20. (previously presented) The apparatus as set forth in claim 18, the storing  
2 means including:  
3 a means for storing the RGB sub-field video data for the plurality of RGB  
4 sub-fields.

1 21. (previously presented) The apparatus as set forth in claim 20, the reading  
2 means including:  
3 a means for addressing the RGB sub-field video data for the plurality of  
4 RGB sub-fields in the storing means;  
5 a means for reading the RGB sub-field video data for the plurality of RGB  
6 sub-fields in the storing means to create a fully re-ordered RGB sub-field video  
7 data; and  
8 a means for communicating the fully re-ordered RGB sub-field video data  
9 to downstream modules of a display processing system.

1 22. (previously presented) The apparatus as set forth in claim 10, the receiving  
2 means including:  
3 a means for generating a plurality of R separation sub-fields associated  
4 with a frame of the R separation video data, wherein each R separation sub-field  
5 includes R separation sub-field video data associated with the R separation video  
6 data;  
7 a means for generating a plurality of G separation sub-fields associated  
8 with a frame of the G separation video data, wherein each G separation sub-field  
9 includes G separation sub-field video data associated with the G separation video  
10 data;

11           a means for generating a plurality of B separation sub-fields associated  
12 with a frame of the B separation video data, wherein each B separation sub-field  
13 includes B separation sub-field video data associated with the B separation video  
14 data; and

15           a means for writing the R separation sub-field video data for the plurality  
16 of R separation sub-fields, the G separation sub-field video data for the plurality  
17 of G separation sub-fields, and the B separation sub-field video data for the  
18 plurality of B separation sub-fields to the storing means.

1   23.   (previously presented) The apparatus as set forth in claim 22, the storing  
2 means including:

3           a means for storing the R separation sub-field video data for the plurality  
4 of R separation sub-fields;

5           a means for storing the G separation sub-field video data for the plurality  
6 of G separation sub-fields; and

7           a means for storing the B separation sub-field video data for the plurality  
8 of B separation sub-fields.

1   24.   (previously presented) The apparatus as set forth in claim 23, the reading  
2 means including:

3           a means for addressing the R separation sub-field video data for the  
4 plurality of R separation sub-fields in the storing means;

5           a means for reading the R separation sub-field video data for the plurality  
6 of R separation sub-fields in the storing means to create fully re-ordered R  
7 separation sub-field video data;

8           a means for communicating the fully re-ordered R separation sub-field  
9 video data to downstream modules of a display processing system;

10          a means for addressing the G separation sub-field video data for the  
11 plurality of G separation sub-fields in the storing means;

12          a means for reading the G separation sub-field video data for the plurality  
13 of G separation sub-fields in the storing means to create fully re-ordered G  
14 separation sub-field video data;

15           a means for communicating the fully re-ordered G separation sub-field  
16 video data to downstream modules of a display processing system;  
17           a means for addressing the B separation sub-field video data for the  
18 plurality of B separation sub-fields in the storing means;  
19           a means for reading the B separation sub-field video data for the plurality  
20 of B separation sub-fields in the storing means to create fully re-ordered B  
21 separation sub-field video data; and  
22           a means for communicating the fully re-ordered B separation sub-field  
23 video data to downstream modules of a display processing system.

1   25.   (previously presented) The apparatus as set forth in claim 10, the receiving  
2 means including:

3           a means for identifying an operational configuration for the receiving  
4 means based on a selected display.

1   26.   (currently amended) An integrated circuit for re-ordering video data to a  
2 selected display format, the integrated circuit comprising:

3           a substrate;

4           a first programmable processor fabricated on the substrate and connected  
5 with video input and programming terminals, the first programmable processor  
6 being configured to perform a first transpose process on the video data to create  
7 partially transposed video data;

8           a second programmable processor fabricated on the substrate and  
9 connected with video output and programming terminals, the second  
10 programmable processor being configured to perform a second transpose process  
11 on the partially transposed video data to create fully transposed video of the video  
12 data; and terminals;

13           a memory electrically connected with the first and second processors to  
14 have data written into the memory from the first processor and read out of the  
15 memory by the second processor,

16           wherein the fully transposed video data is compatible to a transposed  
17 scanning technique for driving the display.

1 27. (original) The integrated circuit as set forth in claim 26 wherein the  
2 memory is fabricated on the substrate.

1 28. (currently amended) A method of converting video data from a first format  
2 to a second format comprising:

3 programming a first processor with a first transform which transforms the  
4 first format video data to an intermediate format data for storage in a memory; and  
5 programming a second processor with a second transform which  
6 transforms the intermediate format data from the memory into the second video  
7 format,

8 wherein the second format video data is a transposed video data of the first  
9 format video data, the second format video data being compatible to a transposed  
10 scanning technique for driving the display.

1 29. (currently amended) The method as set forth in claim 28 further including:  
2 supplying the first format video data to the first processor;  
3 transforming the supplied first format video data to the intermediate format  
4 data with the first processor;  
5 writing the intermediate format data to the memory;  
6 reading the intermediate format data from the memory with the second  
7 processor; and ~~and~~  
8 transforming the intermediate format data to the second format video data.

1 30. (original) The method as set forth in claim 28 further including:  
2 fabricating the first and second processors and the memory on a common  
3 substrate.